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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/771,294	02/05/2004	Masaru Izawa	12014-0010DV	3231

22902 7590 05/10/2010

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EXAMINER	
ZHENG, LOIS L	
ART UNIT	PAPER NUMBER
1793	
MAIL DATE	DELIVERY MODE
05/10/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/771,294	IZAWA ET AL.	
	Examiner	Art Unit	
	LOIS ZHENG	1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 April 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *8-11,24 and 25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *8-11,24 and 25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 27 April 2010 has been entered.

Status of Claims

2. Claim 8 is amended in view of applicant's response filed 27 April 2010. Claims 1-7, 12-23 and 26-27 are canceled. Therefore, claims 8-11 and 24-25 are currently under examination.

Status of Previous Rejections

3. The rejection of claims 8-11 and 24-27 under 35 U.S.C. 103(a) as being unpatentable over Boulos et al. US 5,728,235(Boulos) and further in view of Collier et al. US 4,881,975(Collier).is withdrawn in view of applicant's new claim amendment filed 27 April 2010.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 8-11 and 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Otrhalek, et al. US 4,529,45(Otrhalek), and further in view of Boulos et al. US 5,728,235(Boulos) and further in view of Yauchi et al. US 4,474,651(Yauchi).

Otrhalek teaches a process zinc phosphating metal surfaces such as steel(title, col. 2 lines 52-55). Example XI of Otrhalek further teaches applying to the steel panels a conversion coating composition comprising zinc, phosphate without the addition of fluoride ions, wherein the coating composition has a free acid in the range of 5-7 and a total acid in the range of 30-35(col. 8 lines 46-50, col. 7 lines 40-57). The coating application takes place by immersion at a temperature of 185-205°F(i.e. 85-96.1°C) for 5 minutes(col. 7 lines 40-57).

Regarding claims 8-9, the total acid in the coating solution of Otrhalek reads on the claimed total acid of at least 30 and less than 55. The free acid and the inherent total acid to free acid ratio in the coating solution of Otrhalek overlap the claimed free acid and the claimed total acid to free acid ratio. Therefore, a prima facie case of obviousness exists. See MPEP 2144.05. The selection of claimed free acid and total acid to free acid ratio ranges from the disclosed ranges of Otrhalek would have been obvious to one skilled in the art since Otrhalek teaches the same utilities in its' disclosed free acid and total acid/free acid ratio ranges.

However, Otrhalek does not explicitly teach the claimed presence of potassium ions and its amount as recited in claims 8-9. Otrhalek also does not explicitly teach that the coating process is applied to an oil well pipe having a steel composition containing 0.5-13% Cr as claimed.

Boulos teaches a process of treating metal surfaces such as steel surfaces with a conversion coating solution comprising manganese ions(abstract, col. 4 lines 58-62) and phosphoric acid(col. 5 lines 22-43). Boulos's coating solution may additionally comprises potassium hydroxide(i.e. potassium ions) for the adjustment of free and total acid content(col. 8 lines 57-61) and the addition of fluoride is optional(col. 8 lines 3-29).

Regarding claims 8-9, it would have been obvious to one ordinary skill in the art to have incorporated potassium hydroxide as taught by Boulos into the coating solution of Otrhalek in order to adjust and control the free and total acid content as taught by Boulos. In addition, Boulos' teaching shows that the amount of potassium hydroxide is a result effective variable since it would have affected the acid content of the coating solution. Therefore, it would have been obvious to one of ordinary skill in the art to have varied the amount of potassium hydroxide (i.e. potassium ions) in the coating solution of Otrhalek in view of Boulos via routine optimization in order to achieve desired free acid and total acid content.

Yauchi teaches a steel alloy containing several wt% of Cr are conventionally used for oil well casing and tubing and zinc phosphate coatings have been conventionally applied to such oil well casing and tubing to prevent galling(col. 1 lines 32-50).

Regarding claim 8-9, it would have been obvious to one of ordinary skill in the art to have applied the zinc phosphate coating process of Otrhalek in view of Buolos to steel alloy that contains several wt% of Cr such as those used in oil well casing and tubing with expected success of preventing galling as taught by Yauchi.

Regarding claims 10-11, Otrhalek teaches claimed immersion coating method, and the coating temperature and duration as taught by Otrhalek read on the claimed coating temperature and duration.

Regarding claim 24, Otrhalek further teaches the subsequent water rinsing step((col. 8 lines 64-65). Although Otrhalek is silent with respect to the claimed drying step, the examiner maintains that it would have been within the skills of one of ordinary artisan to have applied the claimed drying step or allowed the coated steel surface to dry naturally as the last step to produce a solid protective zinc phosphate coating on the metal surface.

Regarding claim 25, the zinc phosphating process of Otrhalek in view of Boulos and Yauchi is capable of forming a chemical conversion coating on the steel surface of the oil well pipe as claimed.

6. Claims 8-11 and 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Otrhalek, et al. US 4,529,45(Otrhalek), and further in view of Donofrio US 4,486,241(Donofrio) and further in view of Yauchi et al. US 4,474,651(Yauchi).

The teachings of Otrhalek are discussed in paragraph 5 above.

However, Otrhalek does not explicitly teach the claimed presence of potassium ions and its amount as recited in claims 8-9. Otrhalek also does not explicitly teach that the coating process is applied to an oil well pipe having a steel composition containing 0.5-13% Cr as claimed.

Donofrio teaches treating a steel surface with a coating solution comprising zinc, phosphoric acid, wherein the addition of fluoride is optional(abstract). Donofrio further

teaches that pH of the zinc phosphate coating can be adjusted by the addition of alkali metal hydroxide such as potassium hydroxide(col. 3 lines 58-62).

Regarding claim 8-9, it would have been obvious to one ordinary skill in the art to have incorporated potassium hydroxide as taught by Donofrio into the coating solution of Otrhalek in order to adjust and control the pH of the coating solution as taught by Donofrio. In addition, Donofrio's teaching shows that the amount of potassium hydroxide is a result effective variable since it would have affected the pH of the coating solution. Therefore, it would have been obvious to one of ordinary skill in the art to have varied the amount of potassium hydroxide (i.e. potassium ions) in the coating solution of Otrhalek in view of Donofrio via routine optimization in order to achieve and maintain desired pH in the coating solution.

Yauchi teaches a steel alloy containing several wt% of Cr are conventionally used for oil well casing and tubing and zinc phosphate coatings have been conventionally applied to such oil well casing and tubing to prevent galling(col. 1 lines 32-50).

Regarding claims 8-9, it would have been obvious to one of ordinary skill in the art to have applied the zinc phosphate coating process of Otrhalek in view of Donofrio to steel alloy that contains several wt% of Cr such as those used in oil well casing and tubing with expected success of preventing galling as taught by Yauchi.

Regarding claims 10-11, Otrhalek teaches claimed immersion coating method, and the coating temperature and duration as taught by Otrhalek read on the claimed coating temperature and duration.

Regarding claim 24, Otrhalek further teaches the subsequent water rinsing step((col. 8 lines 64-65). Although Otrhalek is silent with respect to the claimed drying step, the examiner maintains that it would have been within the skills of one of ordinary artisan to have applied the claimed drying step or allowed the coated steel surface to dry naturally as the last step to produce a solid protective zinc phosphate coating on the metal surface.

Regarding claim 25, the zinc phosphating process of Otrhalek in view of Donofrio and Yauchi is capable of forming a chemical conversion coating on the steel surface of the oil well pipe as claimed.

7. Claims 8-11 and 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2001-335956(JP'956), and further in view of Boulos et al. US 5,728,235(Boulos).

Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

JP'956 teaches a method of treating oil well tube joint made of Cr-containing steel with a manganese phosphate conversion coating solution wherein the total acid of the coating solution is controlled to 55-80 points, free acid is controlled to 4.0-14.0 points and the ratio of total acid to free acid is controlled to 5.0-12.0(abstract). JP'956 does not teach the addition of fluoride ions to the coating solution. The Cr is present in the steel oil well tube joint in an amount of 1.0-13wt%(paragraph [0009]).

However, JP'956 does not explicitly teach the claimed potassium ion in the manganese phosphate coating solution.

Boulos teaches a process of treating metal surfaces such as steel surfaces with a conversion coating solution comprising manganese ions(abstract, col. 4 lines 58-62) and phosphoric acid(col. 5 lines 22-43). Boulos's coating solution may additionally comprises potassium hydroxide(i.e. potassium ions) for the adjustment of free and total acid content(col. 8 lines 57-61) and the addition of fluoride is optional(col. 8 lines 3-29).

Regarding claim 8, it would have been obvious to one ordinary skill in the art to have incorporated potassium hydroxide as taught by Boulos into the coating solution of JP'956 in order to adjust and control the free and total acid content as taught by Boulos. In addition, the free acid, the total acid and the ratio of total acid to free acid in the coating solution of JP'956 in view of Boulos overlap the claimed free acid, total acid and total acid/free acid ratio ranges. Therefore, a prima facie case of obviousness exists. See MPEP 2144.05. The selection of claimed free acid, total acid, and total acid to free acid ratio ranges from the disclosed ranges of JP'956 in view of Buolos would have been obvious to one skilled in the art since JP'956 in view of Buolos teach the same utilities in its' disclosed free acid, total acid, and total acid/free acid ratio ranges.

Regarding claim 9, Boulos' teaching shows that the amount of potassium hydroxide is a result effective variable since it would have affected the acid content of the coating solution. Therefore, it would have been obvious to one of ordinary skill in the art to have varied the amount of potassium hydroxide (i.e. potassium ions) in the

coating solution of JP'956 in view of Boulos via routine optimization in order to achieve desired free acid and total acid content.

Regarding claims 10-11, JP'956 further teaches that the coating solution is applied by immersion at a temperature of 60°C for 5-120 minutes(paragraph [0013).

Regarding claim 24, JP'956 further teaches the claimed rinsing and drying steps (paragraph [0013]).

Regarding claim 25, the process of JP'956 in view of Boulos is capable of forming a conversion film on the surface of an oil well pipe as claimed.

Response to Arguments

8. Applicant's arguments filed 27 April 2010 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LOIS ZHENG whose telephone number is (571)272-1248. The examiner can normally be reached on 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ Roy King/
Supervisory Patent Examiner, Art Unit 1793

LLZ